



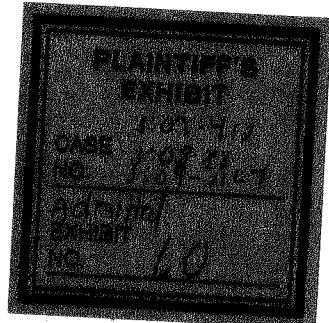
Engineers and Environmental Consultants

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July 20, 2009

Mr. James Crawford  
Patriot Coal Corporation  
PO Box 1233  
Charleston, West Virginia 25324

RE: Letter Report - Selenium Remediation Liability Cost  
Estimate for Magnum Coal Company Operations  
Project No. 0101-08-0637



Dear Mr. Crawford:

Potesta & Associates, Inc. (POTESTA) appreciates the opportunity to provide a selenium liability cost estimate associated with Patriot Coal Corporation's (Patriot) acquisition of Magnum Coal Company (Magnum).

Patriot acquired the assets of Magnum on July 23, 2008. Included in the acquisition were several operating surface and deep mine facilities in southern West Virginia. These operations included Apogee Coal Company, Catenary Coal Company, Coyote Coal Company, Midland Trail Energy, Reinington Coal Company, Hobet Mining Company, Jupiter Coal Company, and Panther Coal Company. These operations are regulated by the West Virginia Department of Environmental Protection (WVDEP), Division of Mining and Reclamation. Water discharges from the mining operations are regulated under West Virginia's National Pollutant Discharge Elimination System (NPDES) which requires that discharges be monitored on at least a monthly basis. The Magnum operations required to monitor and achieve compliance for selenium in their water discharges are Jupiter Coal Company, Panther Coal Company, Hobet Mining Company, Apogee Coal Company, Catenary Coal Company, and Midland Trail Energy.

Patriot requested that POTESTA prepare an estimate of the costs to remediate selenium exceedances in order to meet the requirements of court orders, consent decrees and Magnum's permits. The United States Environmental Protection Agency and the State of West Virginia are currently considering revisions to selenium water quality standards which are expected to increase the allowable effluent levels from the current 4.7 parts per billion. This cost estimate has been prepared considering the dynamics of current legislation, capabilities of currently available technology and the Company's planned remediation strategy. Installation of treatment systems, as detailed in this valuation, at each of the 78 identified outlets should prevent any enforcement actions under court orders, consent decrees and permits. POTESTA believes that water treatment could be required in perpetuity if there are no changes to the current compliance standards.

POTESTA is familiar with the Magnum operations as a result of historically completing projects related to Magnum operations. Some of these projects included evaluation of mine water discharges containing selenium. Additionally, POTESTA relied on our engineering and previous experience with similar projects.

POTESTA & ASSOCIATES, INC.

Morgantown, West Virginia • Winchester, Virginia

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Mr. James Crawford  
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Find attached tables summarizing the selenium remediation liability cost estimate for the Magnum operations.

### TREATMENT TECHNOLOGY

The Zero Valant Iron (ZVI) treatment system is currently the best available treatment technology for reducing selenium levels. Though ZVI treatment technology is effective on a small scale, the effectiveness and practicality have not been demonstrated on a scale required by coal mining operations that treat extremely large volumes of storm water runoff.

### OUTLETS REQUIRING TREATMENT

The outlets requiring treatment systems and the priority of implementing treatment systems are provided in Table 1 and were based on review of Magnum operation's 2007 and 2008 NPDES Discharge Monitoring Reports (DMR) obtained from the WVDEP and POTESA's knowledge of Magnum operations.

### TREATMENT SYSTEM AND OPERATING COST

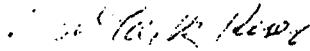
Tables 2 and 3 summarize the actual operating costs required to implement several ZVI treatment systems currently installed at Hobet, Catenary, and Appogee. POTESA believes that these costs represent a reasonable cost basis for the installation of future systems.

### SELENIUM REMEDIATION LIABILITY COST ESTIMATE

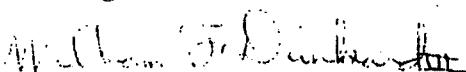
The cost to remediate selenium was estimated at \$390,719.470 gross (adjusted for inflation) or \$85,155,374 expressed as a present worth cost. Based on the current state and federal regulatory requirements imposed and implemented under the West Virginia NPDES program and the current best available remediation technology, POTESA believes that this estimate is reasonable.

Respectfully submitted,

POTESA & ASSOCIATES, INC.



D. Mark Kiser, P.E.  
Chief Engineer



William F. Drinkard III, P.E.  
Senior Engineer

DMK:WFD/clr  
Enclosures





Ex. No Condition Permit No. Orderd & Issued	Jul-09			Aug-09			Sep-09			Oct-09			Nov-09			Dec-09		
	Initial Operating Costs	System Total	Total Operating Costs	Initial System Costs	System Total													
Permeable	WY010350	1	235,450	20,925	264,375	20,925	20,925	20,925	20,925	0	0	20,925	20,925	0	20,925	20,925	20,925	
Adverse	WY010350	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Adverse	WY010350	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Adverse	WY005952	1	418,826	8,284	472,170	8,284	8,284	8,284	8,284	0	0	8,284	8,284	0	8,284	8,284	8,284	
Adverse		70	418,826	53,242	472,170	53,242	53,242	53,242	53,242	0	0	53,242	53,242	0	53,242	53,242	53,242	
Total		70	418,826	11,320	100,641	0	11,320	11,320	11,320	0	0	11,320	11,320	0	11,320	11,320	11,320	
net of tax		70	418,826	371,538	41,914	41,914	371,538	41,914	41,914	0	0	41,914	41,914	0	41,914	41,914	41,914	
Gross		70	329,723	41,914	371,538	41,914	371,538	41,914	371,538	0	0	371,538	371,538	0	371,538	371,538	371,538	

No	Combination	Permit No.	Outlet No.	July			Aug-09			Sept-09			Oct-09			Nov-09			Dec-09			Jan-2010		
				Billed Operating Costs	System Costs	Total																		
Farmable	WY01359	1	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	20.925	
Advanc	WY01359	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Advanc	WY01359	3	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	
Advanc	WY01359	4	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	
Advanc	WY01359	5	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	
Advanc	WY01359	6	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	
Advanc	WY01359	7	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	
Advanc	WY01359	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Extn.	Inv. Control No. / Outfit No.	2nd Quarter 2010			3rd Quarter 2010			4th Quarter 2010			1st Quarter 2011			2nd Quarter 2011			3rd Quarter 2011		
		Initial Operating Costs	Total	System Costs	Initial Operating Costs	Total													
ee	WV101356	1	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	88,774	
	WV101356	2	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	
	WV101359	3	408,705	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	431,480	
	WV101359	1	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	24,793	
	WV102852	78	2,192,632	204,831	3,037,464	2,000,020	1,053,687	3,181,719	2,046,935	1,227,226	4,074,172	3,253,642	1,425,677	4,673,218	3,253,642	1,425,677	4,673,218	3,253,642	1,425,677
	Laxes	512,224	214,341	729,555	495,355	248,575	748,511	574,321	260,081	865,002	661,580	377,680	1,236,070	861,580	377,680	1,236,070	861,580	377,680	
	Net of tax:	1,950,318	690,551	2,540,000	1,801,003	1,041,112	2,405,203	2,172,818	1,031,554	3,189,170	2,382,002	1,040,077	3,440,139	2,382,002	1,040,077	3,440,139	2,382,002	1,040,077	3,440,139

Gross

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Permit No. Condition	Outlet No.	2003			2004			2005			2006			2007			2008		
		Initial Operating Costs	Total System Costs	Total Operating Costs	Initial System Costs	Total System Costs	Total Operating Costs												
Favorable	WV101359	1	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087	347,087
Average	WV101359	2	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171
Average	WV101359	3	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171
Average	WV000952	1	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171	88,171
		70	0	7,983,229	7,983,229	0	7,983,229	7,983,229	0	7,983,229	7,983,229	0	7,983,229	7,983,229	0	7,983,229	7,983,229	0	7,983,229
Gross			0	2,011,774	2,011,774	0	2,011,774	2,011,774	0	2,011,774	2,011,774	0	2,011,774	2,011,774	0	2,011,774	2,011,774	0	2,011,774
			0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455
			0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455	5,971,455	0	5,971,455

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**TABLE 2**  
**SELENIUM TREATMENT SYSTEM CAPITAL COST**  
**MAGNUM OPERATIONS**

FAVORABLE									
Company	Permit No.	Outlet No.	Date Completed	Materials/Supplies	Site Prep	Power	No. of Tanks	Total w/o power & site prep	Total w/o power & site prep
Catenary	WV1014684	3	28-Mar-09	22,536	6,000	0	1	28,836	22,836
	WV0096962	55	23-Jan-09	78,967	104,415	0	4	163,322	73,967
	WV0093751	5	5-Jun-09	78,967	15,583	0	4	94,550	76,967
Apogee	WV1013599	1	9/30/2008	315,230	129,663	0	21	441,863	315,230
	WV0095520	1	10/10/2008	126,000	10,000	0	6	136,000	126,000
Hobet	WV1016776	50	26-Mar-09	123,421	10,000	17,080	6	156,507	123,427
	WV1016776	1	16-Mar-09	126,719	10,000	5,149	5	141,574	126,725
	WV1016776	2	18-Aug-08	108,486	20,378	0	6	125,870	108,492
<b>Total</b>				<b>980,620</b>	<b>306,039</b>	<b>22,229</b>	<b>54</b>	<b>1,308,906</b>	<b>980,638</b>
Avg/ Installation							<b>7</b>	<b>163,113</b>	<b>122,580</b>
Avg/Tank							<b>24,239</b>	<b>18,160</b>	

Avg Cost for 6-Tank Base System w/o power & site prep  
Add-on for Site Prep (per system)  
Add-on for Power (per system)  
Total Avg Base System Cost

ADVERSE									
Company	Permit No.	Outlet No.	Date Completed	Materials/Supplies	Site Prep	Power	No. of Tanks	Total w/o power & site prep	Total w/o power & site prep
Catenary	WV1014684	3	28-Mar-09	22,830	12,000	0	1	34,830	22,830
	WV0096962	55	23-Jan-09	78,967	208,830	0	4	287,797	78,967
	WV0093751	5	5-Jun-09	78,967	31,166	0	4	110,133	78,967
Apogee	WV1013599	1		315,230	259,326	0	21	574,556	315,230
	WV0095520	1		126,000	20,000	0	6	146,000	126,000
Hobet	WV1016776	50		123,421	20,000	68,320	6	211,741	123,427
	WV1016776	1		126,719	20,000	20,597	6	167,316	126,719
	WV1016776	2		108,486	40,757	0	6	149,242	108,486
<b>Total</b>				<b>980,620</b>	<b>612,079</b>	<b>88,917</b>	<b>54</b>	<b>1,681,615</b>	<b>980,620</b>
Avg/ Installation							<b>7</b>	<b>210,202</b>	<b>122,577</b>
Avg/Tank								<b>31,141</b>	<b>18,160</b>

Avg Cost for 6-Tank Base System w/o power & site prep  
Add-on for Site Prep (per system)  
Add-on for Power (per system)  
Total Avg Base System Cost

108,958  
208,830  
88,917  
406,705

**TABLE 3****OPERATING COSTS  
MAGNUM OPERATIONS**

Flow Rate Per Treatment Train	12	
Tanks Per Treatment Train	3	
Effective GPM Per Tank	4	
Media Cost Per Tank	7,000	
Recharges Tank Per Year	2	
Monitoring , Lab. Parts, Repair Per Tank Per Year	2,528	
<b>Operating Cost Per Year Per Tank</b>	<b>16,528</b>	
<b>Operating Cost Per Year Per GPM</b>	<b>4,132</b>	
<b>Operating Cost Per Month Per Tank</b>	<b>1,377</b>	6-Tank Base System
<b>Operating Cost Per Month Per GPM</b>	<b>344</b>	8,264
Hobet WV 1016776 Outlet 002 Lab Analysis	12,642	
Est annual cost per tank @ six tanks	2,528	10 mos.